

popularizing without misstating. Professor McAlpine has accomplished this task as well as we have yet seen it done. The book was not written for botanists, but it should be able to stand the fire of their criticism. At the same time botanists must not criticize technical points or omitted facts. It is simply a question as to whether what has been stated is clear enough to be understood or is not misleading. The book begins with a chapter upon the comparative study of plants and animals on a physiological basis, and another upon the living cell. The remaining pages take up types, beginning with the lowest, and give a condensed account of their structure and life history, over forty being considered. The book is not only a capital one for the general reader, but would be very helpful in the hands of the young laboratory worker. The figures are the same that have done such long and efficient service in botanical works, and a few changes in that direction would have been both easy and valuable. There are some things that might be criticised. In referring to the function of chlorophyll, p. 69, Pringsheim's "screen" theory is given without any mention of there being a diversity of opinion upon the subject. The use of the terms "root" and "shoot" are carried down to the lowest plants on physiological grounds, but the average reader will not distinguish between root-function and root-structure, and so we would class the use of these terms as misleading. The terms "microspore" and "macrospore" are carried through to the highest plants, a thing proper enough perhaps for the technical botanist, but the audience for whom the book is written had better know what the pollen-grain and embryo-sac mean. On p. 229, in speaking of the germination of the teleutospores of wheat-rust, the statement that they "only continue their course of development on the Barberry-leaf," should be modified in accordance with the fact. But these are mostly matters of judgment, and we would commend the book as being very readable and serviceable.

Preliminary Synopsis of North American Carices, including those of Mexico, Central America and Greenland, with the American bibliography of the genus. By L. H. Bailey, jr. pp. 99, v. Reprinted from Proc. Amer. Acad., April 14, 1886.

That the genus *Carex* needs elucidation all botanists will agree, and Professor Bailey has done us good service in thus recording the results of his study. A proper judgment upon such work can be passed only after using it, and whatever is said now is based upon the author's known ability. Such a vast genus is, of necessity, a most bewildering tangle, and if Professor Bailey has straightened it all out he has done far more than he claims. Of course it will be found faulty in parts, and the author will probably be quicker to recognize that than any one else, but it must surely advance our knowledge of carices and lighten the labor of naming them. Changes in nomenclature are quite numerous and radical, and the author deserves commendation for his attempt to observe the law of priority. The paper gives distinguishing characters for all species not described in Gray's Manual, Chapman's Flora and Coulter's Manual. The breaking away from the old artificial groupings, and the attempt to distribute species in natural groups, is noteworthy. Professor Bailey has put us under an obligation which should be repaid by the careful use and criticism of his paper.

NOTES AND NEWS.

THE HERBARIUM of Lamarek has been acquired by the French government and placed in the Jardin des Plantes.

PROF. W. W. BAILEY finds that the stamens of *Parnassia* mature one at a time, and asks if this has been observed before.

THÉODOR G. ORPHANIDÈS, emeritus professor of botany at the university of Athens, died in August last at 69 years of age.

DR. EMILY L. GREGORY presents the first part of a paper on the distribution and function of the pores of libriform tissue, in the *Bulletin of the Torrey Club* for November.

PROF. O. NORDSTEDT has critical notes on the marine *Vaucheria litorea*, *V. sphaerospora*, *V. Thuretii* and *V. Synandra*, illustrated with a plate, in the October *Scottish Naturalist*.

A WELL WRITTEN and readable notice of Lubbock's "Flowers, Fruits and Leaves," covering over a page, is given in No. 1115 of the *Nation*, under the title of "Vegetal æsthetics."

A. A. CROZIER, graduate of Michigan Agricultural College and of the botanical department of the State University, has been appointed assistant to Dr. Vasey in the Department of Agriculture.

SPIRANTHES ROMANZOVIANA has been a very rare orchid in Ireland for fifty years or more, and is now thought to be entirely exterminated. A systematic search for it is talked of for next year.

PROF. DR. LEIMBACH, editor of *Irmischia* and of the *Deutsche botanische Monatsschrift*, has removed from Sondershausen to Arnstadt, where he has accepted the position of director of the Realschul.

BARON F. VON MUELLER will next June resign his position as director of the Botanical Garden of Melbourne, Australia.

MISS LILLIE J. MARTIN'S paper on the preliminary analysis of the leaves of *Juglans nigra*, read before the A. A. A. S., Buffalo meeting, has been issued as a reprint from the *Amer. Jour. of Phar.*, October, 1886.

DR. THEOBALD SMITH expresses some thoughts on recent investigations concerning bacteria in drinking water, in the *Medical News* of October 9, which are especially valuable to those engaged in such researches.

DR. J. W. A. WIGAND, the renowned professor of botany at the University of Marburg, is dead, at the age of sixty-five years.

FOUR FRENCH BOTANISTS have recently died: L. D. A. F. M. Marcilly, conservator of forests; Guillaume Sicard, mycologist; Ed. Lamy de la Chapelle, lichenologist; and Jean Baptiste Pierre Letendre, cryptogamist.

ON PAGE 260, October *Gazette*, is an omission which should be corrected. To the characters of $\frac{1}{2}$ 1 should be added "ducts peripheral."

DESCRIPTIVE NOTES on Papuan plants, by Baron F. v. Mueller, cover 120 octavo pages, and include many new species. The descriptions are in English.

ERRATA.—Page 263, for *Epeelus*, *Pelopocus*, *Stizua* and *Trichina*, read *Epeolus*, *Pelopocus*, *Stizus* and *Trichius*. In foot-note 5 for "bears a resemblance" read bears no resemblance.

MR. JOHN H. REDFIELD continues his notes in the November *Bulletin of the Torrey Club*, upon localities for *Corema*, with an account of explorations for 1886.

THE SOCIEDADE BROTERIANA, of Coimbra, publishes an annual bulletin, issued in parts, which has now reached its fourth volume. It is devoted to the study of the flora of Portugal, and has already brought to light quite a number of new species.

BARON VON MUELLER'S activity in making known the flora of Australia and adjacent regions is shown in his almost monthly publication of new species of flowering plants in the *Victorian Naturalist*, *Australasian Journal of Pharmacy*, and other journals.

THE MYXOMYCETES are noticed in the August and November numbers of the *Journal of Mycology* by critical notes on the banded-spore *Trichias* by Dr. George A. Rex, and by the description of a new genus and species, *Orthotrichia microcephala*, by Harold Wingate.

PROF. A. N. PRENTISS has written in the *Am. Horticulturist* (reprinted in the *Am. Naturalist* for November) upon how botany shall be taught in agricultural colleges. What he suggests finds its application not only in agricultural colleges, but wherever botany is taught.

TWO NEW WORKS of much interest are announced from the press of Swan Sonnenschein, Lowrey & Co., London. The first is a "Text book of practical botany," edited from the work of Strasburger by Prof. W. Hillhouse, and the other is "The microscope, in theory

and practice," edited from the work of Nägeli and Schwendener by J. Mayall. A new edition, entirely re-written, of Prantl and Vines' "Text book of botany," is also announced by the same firm.

MICROSPORES in *Sphagnum* were described by Schimper in 1858. They were found in separate capsules, and also intermixed with the macrospores. They do not appear to have been seen again, however, until a few months ago. The subject is discussed by C. Warnstorff in *Hedwigia*.

THE COMPLETE life history of *Gnomonia erythrostroma* has been traced by Dr. Frank (*Berichte d. deutsch. bot. Gesellschaft*, iv, p. 200), making the second Pyrenomycetous fungus in which the sexual reproduction is known. It attacks the leaves of the cherry tree, enfeebling the tree, and finally killing it.

A LIST of the Diatomaceæ of Lake Michigan, by B. W. Thomas and H. H. Chase, is the result of collections from the Chicago water supply, made chiefly by Mr. Thomas during the last sixteen years. Two hundred and fifteen species and varieties are enumerated, six of which are marked *n. sp.*, and one *n. var.*

MR. J. H. HART, superintendent of the government cinchona plantations, Jamaica, has issued from the press of Mortimer C. DeSouza, Kingston, a very interesting account of "A Botanist's Rumbles" in Central America. It gives a sketchy account of the plants of that interesting region and is well worth reading. It can be had from the author for a sixpence.

MR. D. H. CAMPBELL is at present at Bonn, studying in Strasburger's laboratory. He reports but two or three working there during the winter semester, but that during the summer the number will reach 30 or 40. Dr. Strasburger takes great personal interest in the work of his students, and gives them more attention than would be expected from so busy a man.

DR. C. C. PARRY, in a reprint from the *Proc. Davenport Acad. Sci.*, v. 35, confirms the genus *Lastarriæa* Remy and extends its character. In his memoir on *Chorizanthe* he had included this genus as *C. Lastarriæa*, but two new species from Chili have confirmed its generic characters, and so it has been restored and becomes *L. Chilensis* Remy, with two Chilian associates.

M. C. COOKE criticizes Stevenson's recent work on "British fungi," in a late issue of *Nature*, by charging that over forty species were wrongly omitted from the first volume, and for other faults, none of which, however, materially affect the value of the work for American botanists. It must be remembered that Dr. Cooke's views rarely coincide with those of his fellow mycologists.

AT THE LAST annual meeting of the Union of Naturalists' Societies of the East of Scotland, Prof. J. W. H. Trail gave an address on the work to be done by such an organization, which in the main is equally pertinent to American societies. He placed bibliographical indexes first, and local lists of different classes of natural history second, both to be prepared by the coöperative system.

"THE WIND as a seed-carrier," was the title of a paper presented by Alfred Russell Wallace at the November meeting of the National Academy of Sciences, in which the author suggested that the power of the wind to occasionally carry seed to extraordinary distances might account even for the transfer of species from cold regions of the northern hemisphere to those of the southern.

BULLETIN NO. 1 of the botanical division of the U. S. Department of Agriculture, by Dr. George Vasey, is devoted to economic questions regarding the grasses of the arid districts of Kansas, Nebraska and Colorado, including an item on the advantages of establishing a grass-experiment station. We are otherwise informed that a bill for this purpose will be presented at the next session of Congress.

HERR F. FREYN, engineer, (whose address is III, Karmelitergasse, 21, Prague), who has paid much attention to the genus *Ranunculus*, and is preparing a general work on the species, wishes to obtain specimens of those of North America generally, especially of the newly found and the rare or critical species. Indeed, good specimens of any of our species will be welcome. European species are offered in return.

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A BIOGRAPHICAL SKETCH of the botanist Mühlenberg, with portrait, has been distributed as a reprint from Hoffman's "Pharmaceutische Rundschau," June, 1886. It is written by Dr. J. M. Maisch, of the Philadelphia College of Pharmacy, and is exceedingly interesting. As closely identified with early American botany as Mühlenberg was, it is specially fitting for American botanists to be acquainted with his life.

THE OCTOBER NUMBER of the *Italian Journal of Botany* contains bryological notes by G. Venturi, the extra-floral nectary of Amygdalaceæ by L. Macchiati, description of some new Malesian Scitamineæ by B. Scortechini, notes on the fruit and seeds of Cacao by T. Caruel, a case of proliferation in *Spilanthes* by F. Tassi, a new station for *Aceras anthrophora* by P. Severino, and teratological notes by C. Massalonge.

THE FOLLOWING NOTE by Dr. Asa Gray is taken from the *Gardeners' Chronicle* of November 6: "It is a mistake to say that *Lespedeza striata* is indigenous to most parts of North America. It is a Chinese and Japanese plant, which came to the United States nobody knows how, but not many years ago, but has now spread wonderfully in the southern United States." Notes on its history are given in this journal, vol. III, pp. 4, 42.

IN THE *Bulletin of the Torr. Bot. Club*, for November, there are three papers of systematic interest. Dr. Britton publishes a preliminary list of the N. Am. species of *Cyperus*, a genus which he has long been studying. Seventy-three species are enumerated, and several new varieties and species are described. Rev. E. L. Greene describes six new Californian Polypetalæ, and Dr. Vasey publishes (with plate) a new genus of grasses, dedicated to Mr. C. R. Orcutt. *Orcuttia Californica* belongs to the Festuceæ and was found in Lower California.

THE EDITOR of the *Botanisches Centralblatt* desires to have it announced that the report of any American botanical society will be gladly published in that journal, without translation, and fifty excerpts furnished the society free. Two hundred and fifty more copies will be supplied, if desired, at the rate of about thirty cents per page. This generous offer, which gives the society a separate printed report at little or no cost, and brings its proceedings to the notice of botanists throughout the world, ought not to remain unheeded. Address Dr. Uhlworm, Cassel, Germany.

ACTA HORTI PETROPOLITANI, vol. ix, No. 2, appears with ten folded plates and several articles of importance to systematists. C. Winkler describes twenty new Compositæ from Turkestan, E. R. Trautwetter publishes a list of a Turcoman collection, with descriptions of new species, among which the Astragali predominate. Dr. E. Regel also continues his descriptions of new or little known plants. The most important parts of Dr. Regel's contribution are the monographs of the Asiatic genus *Eremostachys*, and a conspectus of the species of *Phlomis*.

A PAPER on rhizocarps in the Erian (Devonian) period in America, by Sir Wm. Dawson, forms No. IX of the *Bulletin* of the Chicago Academy of Sciences. It treats of microscopic objects first found by Mr. B. W. Thomas and others in 1865-7, in the clays that underlie Chicago. Similar bodies have since been found in considerable quantities in Ohio, New York, Canada, Scotland, Tasmania, Australia and Brazil, and quite a literature has come into existence. They were figured and described in a bulletin of the same series in 1884, under Dr. Dawson's name of sporangites. The author now believes them to be the spores of *Salvinia*-like plants, and divides them into five species, under the genus *Protosalvinia*. The subject is of general interest in suggesting the remarkable abundance of floating rhizocarps in the period preceding the carboniferous.

DR. WILLIAM TRELEASE has published a revision of the North American species of *Phalictum*, distributed as a reprint of the Boston Soc. Nat. Hist., xxiii, 293-304, accompanied by a plate. The species have always been difficult of discrimination and botanists will value this accordingly. The most valuable characters are taken from the condition of the flowers (whether perfect, etc.), the length and form of filaments, the anthers, and the character of achenia. The foliage is of little diagnostic value. A dozen species are defined, one, *T. venulosum*, being a new species from the Rocky Mountain region, while Mühlenberg's *T. polygamum* replaces *T. Cornuti* of Gray's Manual, as already noted by the author in this journal, xi. 92. The good plate of achenia helps to make the work of determining species easy.

REV. E. L. GREENE has issued his fifth paper entitled "Studies in the botany of California and parts adjacent," being a reprint from Bulletin 6 of the Calif. Acad. Sci. Most of the contribution is taken up with a study of the genus *Brodiaea*. Mr. Greene has observed the species in the field, and has thus discovered characters unobservable by closet botanists. The genera "confused under *Brodiaea*" are characterized as *Brodiaea* Smith, in part, *Hookera* Salisb., in part, and *Triteleia* Dougl., etc. A new genus, *Behria*, is added to the group, of which only the umbels are known. Comparing with Mr. Watson's revision of Liliaceæ, *Brodiaea* is reduced to the second half of the *Eubrodiaea*, *Hookera* contains the other half, while *Triteleia* includes the other two sections. Several new species are added to each genus. Mr. Greene also restores *Syrmatium* Vogel, to include 15 or 18 species of *Hosackia*. It was the Nuttallian genus *Drepanolobus*. Some 18 or 20 miscellaneous species are described as new.

MR. THOMAS MEEHAN has distributed a reprint from *Proc. Philadelphia Acad.*, containing a paper on the fertilization of *Cassia Marilandica*. Mr. Meehan has always been "upon the other side" in cross-fertilization discussions, disputing in general both the fact and the reason. In this paper he is more convinced than ever of his views that cross-fertilization, if accomplished, is of no benefit, and that there is little to prove that close-breeding is an injury. "In my mind, the facts rather show that instead of any material aid to the propagation of the race being gained, the dependence of a plant on insect aid for fertilization is rather an indication that its race is nearly run, and that it is on the downward track in the order of nature." He cites the *Cassia* as a case in point, yet says that in an experiment it did not produce a single seed when the flowers are protected from insects. The papilionaceous flowers are said to give us persistent examples of self-fertilization and hence the constancy of garden varieties.